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INTERNATIONAL PRELIMINARY REPORT ON PATENTABILITY
(Chapter II of the Patent Cooperation Treaty)

(PCT Article 36 and Rule 70)

Applicant's or agent's file reference BP106425	FOR FURTHER ACTION See Form PCT/IPEA/416	
International application No. PCT/FI2003/000462	International filing date (day/month/year) 11-06-2003	Priority date (day/month/year) 18-06-2002
International Patent Classification (IPC) or national classification and IPC H04Q 7/32		
Applicant NOKIA CORPORATION ET AL		

1. This report is the international preliminary examination report, established by this International Preliminary Examining Authority under Article 35 and transmitted to the applicant according to Article 36.
2. This REPORT consists of a total of 4 sheets, including this cover sheet.
3. This report is also accompanied by ANNEXES, comprising:
- a. ☒ (sent to the applicant and to the International Bureau) a total of 2 sheets, as follows:
- ☒ sheets of the description, claims and/or drawings which have been amended and are the basis of this report and/or sheets containing rectifications authorized by this Authority (see Rule 70.16 and Section 607 of the Administrative Instructions).
- ☐ sheets which supersede earlier sheets, but which this Authority considers contain an amendment that goes beyond the disclosure in the international application as filed, as indicated in item 4 of Box No. I and the Supplemental Box.
- b. ☐ (sent to the International Bureau only) a total of (indicate type and number of electronic carrier(s)) _____, containing a sequence listing and/or tables related thereto, in computer readable form only, as indicated in the Supplemental Box Relating to Sequence Listing (see Section 802 of the Administrative Instructions).

4. This report contains indications relating to the following items:

- | | | |
|-------------------------------------|--------------|---|
| <input checked="" type="checkbox"/> | Box No. I | Basis of the report |
| <input type="checkbox"/> | Box No. II | Priority |
| <input type="checkbox"/> | Box No. III | Non-establishment of opinion with regard to novelty, inventive step and industrial applicability |
| <input type="checkbox"/> | Box No. IV | Lack of unity of invention |
| <input checked="" type="checkbox"/> | Box No. V | Reasoned statement under Article 35(2) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement |
| <input type="checkbox"/> | Box No. VI | Certain documents cited |
| <input type="checkbox"/> | Box No. VII | Certain defects in the international application |
| <input type="checkbox"/> | Box No. VIII | Certain observations on the international application |

Date of submission of the demand 13-01-2004	Date of completion of this report 06-09-2004
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Form PCT/IPEA/409 (cover sheet) (January 2004)

INTERNATIONAL PRELIMINARY REPORT ON PATENTABILITY

International application No.

PCT/FI2003/000462

Box No. I Basis of the report

1. With regard to the language, this report is based on the international application in the language in which it was filed, unless otherwise indicated under this item.

☐ This report is based on a translation from the original language into the following language _____, which is the language of a translation furnished for the purposes of:

- ☐ international search (under Rules 12.3 and 23.1(b))
☐ publication of the international application (under Rule 12.4)
☐ international preliminary examination (under Rules 55.2 and/or 55.3)

2. With regard to the elements of the international application, this report is based on *(replacement sheets which have been furnished to the receiving Office in response to an invitation under Article 14 are referred to in this report as "originally filed" and are not annexed to this report)*:

☐ the international application as originally filed/furnished

☒ the description:

pages 1 - 10 _____ as originally filed/furnished

pages* _____ received by this Authority on _____

pages* _____ received by this Authority on _____

☒ the claims:

pages _____ as originally filed/furnished

pages* _____ as amended (together with any statement) under Article 19

pages* 11 - 12 _____ received by this Authority on 30 - 06 - 2004

pages* _____ received by this Authority on _____

☒ the drawings:

pages 1 - 3 _____ as originally filed/furnished

pages* _____ received by this Authority on _____

pages* _____ received by this Authority on _____

☐ a sequence listing and/or any related table(s) – see Supplemental Box Relating to Sequence Listing.

3. ☐ The amendments have resulted in the cancellation of:

☐ the description, pages _____

☐ the claims, Nos. _____

☐ the drawings, sheets/figs _____

☐ the sequence listing (*specify*): _____

☐ any table(s) related to the sequence listing (*specify*): _____

4. ☐ This report has been established as if (some of) the amendments annexed to this report and listed below had not been made, since they have been considered to go beyond the disclosure as filed, as indicated in the Supplemental Box (Rule 70.2(c)).

☐ the description, pages _____

☐ the claims, Nos. _____

☐ the drawings, sheets/figs _____

☐ the sequence listing (*specify*): _____

☐ any table(s) related to the sequence listing (*specify*): _____

* If item 4 applies, some or all of those sheets may be marked "superseded."

INTERNATIONAL PRELIMINARY REPORT ON PATENTABILITY

International application No.

PCT/FI2003/000462

Box No. V Reasoned statement under Article 35(2) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement

1. Statement

Novelty (N)	Claims	<u>1-13</u>	YES
	Claims	_____	NO
Inventive step (IS)	Claims	<u>1-13</u>	YES
	Claims	_____	NO
Industrial applicability (IA)	Claims	<u>1-13</u>	YES
	Claims	_____	NO

2. Citations and explanations (Rule 70.7)

Documents cited in the International Search Report:

D1: US2002087759
D2: US6044265
D3: US5974312
D4: DE19633919
D5: US5590373
D6: EP0583077

The problem to be solved is presumed to be to realize a method and apparatus that is easy, economical and secure in operation for updating firmware in a mobile device [see the description on page 2 lines 33-34]. This is achieved by transmitting the firmware from a network unit to an external memory unit (of the mobile device) via the mobile device. The firmware is then sent back from the external memory unit to the mobile device [see the description on page 3 lines 1-3 and figure 4].

D1, which is regarded as being the most relevant prior art, describes a method in which the software in a mobile device is updated. The new software is first loaded into a first device, a wireless programmer or programming unit, and is then transmitted to the mobile device [see the abstract and column 2 lines 17-63]. Data input/output devices are used to load the first device with software [see column 8 lines 66-67 and column 12 lines 1-5].

D2 describes a method for loading software into a peripheral device via a first device, a wireless module [see the abstract]. The software can be transmitted to the first device using a wireless communication link [see page 2 paragraph 0017 and claim 3].

.../...

Supplemental Box

In case the space in any of the preceding boxes is not sufficient.

Continuation of: BOX V

D1 is considered to be the closest prior art since it has common features with the present invention namely transferring update data from the network. D2 aims at reprogramming and sending data updates simultaneously to multiple cellular sets without completing a full, call so that capacity of a voice channel is conserved.

The cited documents D3-D6 represent the general state of the art.

The subject matter of the original independent claims 1 and 9 has been amended.

The feature "by mobile device" is displaced with "using mobile device" in order to emphasize that the transferring is made by the mobile device [line 4 of claim 1].

Definite article "the permanent memory unit" is displaced by indefinite article "a permanent memory unit", since a permanent memory unit of the mobile device is disclosed here for the first time, and especially the permanent memory unit is different from the logic, external memory unit, mentioned previously in the claims [lines 7-8 of claim 1 and lines 14-15 of claim 9].

None of the documents D1-D6 describes that firmware (or software in general) is transmitted from a network unit to an external memory unit (of the mobile device) via the mobile device, and that the firmware then is sent from the external memory unit back to the mobile device.

Accordingly, the invention defined in claims 1-13 is novel and is considered to involve an inventive step. The invention is industrially applicable.

Claims

1. A method for updating a firmware of a mobile device belonging to a network, **characterized** in that the method comprises steps of

- transmitting update data from a network unit using a mobile device (403), to which there is connected a logic, external memory unit,
- storing the update data in the external memory unit (203, 303, 406) of the mobile device, and
- programming the stored update data in a permanent memory unit (204, 306, 408) of the mobile device, according to the programming logics provided in the mobile device.

2. A method according to claim 1, **characterized** in that it comprises a step of transmitting the update data from the network unit to the mobile device as a response to a certain function that triggers the transmission, said function being one of the following: choosing from the network unit's menu (402) by a user, choosing from the mobile device's menu (201) by a user, an appearing of new update data to the network unit, or an outdating (301) of the firmware of the mobile device.

3. A method according to claim 1, **characterized** in that the logic, external memory unit is connected to the mobile device by means of an external memory bus (105).

4. A method according to claim 1, **characterized** in that it comprises a step of transmitting the update data by the mobile device (403), where the update data is converted to be compatible with the memory unit and with the memory bus (405) to be connected thereto, whereafter the converted update data is transmitted to the external memory unit along the memory bus (406).

5. A method according to claim 1, **characterized** in that it comprises a step of transmitting the update data by a mobile device, through which the update data is directly transmitted further to the external memory bus of the mobile device along a memory bus (203).

6. A method according to claim 1, **characterized** in that it comprises a step of programming the update data stored in the external memory unit in the mobile device, when the mobile device is switched on for the next time (304, 307, 407, 409).

7. A method according to claim 1, **characterized** in that it comprises a step of copying the programming logics for programming the update data from an external memory unit to the permanent memory unit of the mobile device prior to programming the update data (305).
- 5 8. A method according to claim 1, **characterized** in that it comprises a step of storing the programming logics for updating the update data from the permanent memory of the mobile device to the RAM memory of the mobile device prior to programming the update data.
- 10 9. An arrangement for updating a firmware of a mobile device belonging to a network, **characterized** in that the arrangement includes
- an external memory unit (106) for storing the update data,
 - means for transmitting the update data from a network (107) unit to the external memory unit (106) of the mobile device,
 - means for storing the update data to the external memory unit (106) of the mobile device, and
 - means for programming the stored update data to a permanent memory unit (102) of the mobile device by means of a programming driver provided in the mobile device.
- 15
- 20 10. An arrangement according to claim 9, **characterized** in that the mobile device includes an external bus (105) for connecting a logic, external memory unit (106) to the mobile device (101).
11. An arrangement according to claim 9, **characterized** in that the mobile device includes means for converting the update data into a form (104, 105) required by the external memory unit.
- 25 12. An arrangement according to claim 9, **characterized** in that the mobile device includes means for copying the programming driver to its permanent memory unit (102) from the external memory unit (106) prior to programming the update data.
13. An arrangement according to claim 9, **characterized** in that said means are programmable means.